Sampling Workgroup Meeting
10 March 2005 at 10:00 AM-12:30 PM
EPA Region 2, Room 1940

Participants: Elizabeth Butler (EPA), Eric Stern (EPA), Beth Buckrucker (USACE), Ed Demarest (NJDEP), Anne Hayton (NJDEP), Bob Romagnoli (BBL), Rick McNutt (TSI), Sheldon Lipke (PVSC), Mick DeGraeve (GLEC), Solomon Gbondo-Tugbawa (MPI), Len Warner (MPI), Tim Kubiak (USFWS), Earl Hayter (EPA), Reyhan Mehran (NOAA), Lisa Baron (NJDOT), Alice Yeh (EPA), Sergio Lopez (EPA), Peter Weppler (USACE), Darin Damiani (USACE), Rob Law (de maximis), Ashley Pengitore (PVSC), Bridget McKenna (PVSC), Larry Levine (NRDC), Hank Smeal (NRDC)

Expectations for the Sampling Workgroup were discussed, with most of the members expressing their organizations' specific interests in the program. Some common themes were:

- Workgroup is a forum for providing input on the sampling program.
- Members have expertise to provide on sampling the Passaic River.
- Many wanted to maximize "bang for the buck".

A summary was provided of field sampling program components currently under consideration, dynamic work plan concept, decision trees, and concept sequence/interplay of field activities. The data are being collected for use in risk assessments, modeling, restoration and remediation purposes. Following were comments on the field sampling program components:

- CARP data, and modeling output when available, should be used in the program.

- How are decisions being made for Passaic efforts vs. Newark Bay efforts with regard to data needs, modeling, overlap? There will be consistency between the Passaic River and Newark Bay programs, except where project-specific objectives demand otherwise.

- Need to scope out and address all geotechnical sediment analysis needs, including:
  - information for modelers including finely segmented near-surface (20 cm) cores for bulk density, dry density, total organic carbon, grain size, etc.; and physical properties analyses for sediment samples at depth;
  - information for feasibility study evaluations (physical properties analyses such as unconfined compressive strength, shear strength, etc…);
  - visual classification/stratigraphy for planning sediment coring programs, developing conceptual site model, etc.;
  - geophysical survey ground-truthing programs

- Sediment Profile Imagery (SPI) camera was recommended for use during geophysical survey, coupled with grab samples to evaluate benthic populations and their associated penetration depths. SPI work has been done extensively in the Harbor, with one or two locations also sampled in the mouth of the Passaic River. There are seasonal (Spring or Fall) issues associated with this sampling, but would be helpful for assessing biota and bioturbation.

  Note: after the meeting, the following web site links were sent for information:

http://www.remots.com/
http://www.csc.noaa.gov/lcr/nyharbor/
http://www.csc.noaa.gov/lcr/nyharbor/html/habitats/mapindex.html

- The workgroup needs to review the analytical suite recommended for samples. Advice was given that CARP collected unnecessary data due to insufficient review of analytical suite and data needs. Some discussion ensued noting that not all data users would require, for example, full congener analysis for PCBs, with awareness expressed over analytical cost and validation effort. Question was asked whether Passaic could implement a PE sample program to reduce the validation effort and costs.

- The use of in-situ toxicity testing for porewater samples may be helpful. Workgroup discussed the dual need for risk assessment data and chemical transport data associated with porewater sampling. In-situ toxicity test results could guide subsequent chemical analyses of the porewater, e.g., if a healthy benthic community is encountered, then the focus of the porewater analysis could be shifted from acutely toxic chemicals to bioaccumulative chemicals.

- Vertical contaminant concentration profiles developed by OMR could be used for planning low resolution sediment coring. OMR found cores with 516 ppt of dioxins at 15 feet, and mercury also at depth. It was noted that the default for TSI's sampling in the 6-mile stretch was 5-foot cores, with a handful of cores that showed deep contamination.

- Suggestion that low resolution cores might be collected to inform the location of high resolution cores.

- The utility of Be7 dating is questionable considering its short half-life, so perhaps it should be dropped from the program. Events that mix up surficial sediment reduce the utility of the Be7 data. Don't rely solely on radiodating to pick segments for chemical analyses.

- Is there enough data collection planned upstream of the Dundee Dam to assess the impact of various events on the Lower Passaic River? Is one high resolution core enough? There should be NJ Watershed Loading Study data available for reaches above the Dundee Dam, but those data are probably for nutrients, not toxics. Concern was expressed that there is 100 years of sediment behind the dam -- what could be mobilized over the dam by a significant event? SedFlume testing of a core from behind the Dundee Dam was suggested. Suggestion made for core off of PSEG in Patterson, given amount of product in sediments there.

  Note: after the meeting, this information for sent: The following link should bring you to the NJDEP website that contains the Watershed Management Area 4 Characterization Study. You may have to download the djvu plug in to view the document but this link is on this web page as well.

  http://njedl.rutgers.edu/ftp/html/2910/index.html

- New data sets should be used to develop and investigate ratios and patterns of contaminants that could be useful for source identification. Caution expressed that too much dependency

on indicator compounds can hamper the ability to consider metal distributions fully and conduct principal components analysis.

- Dividing the river by physical characteristics (flow, bed properties) could be a promising approach for effective coring program design. For example, separate sediment sampling strategies/coring layouts could be developed for tributary confluences, depositional areas, erosional areas, areas where the river is particularly tortuous, and then applied to these areas on a site-wide basis.
- There was some question over whether tributary sediment samples are part of the WRDA or CERCLA effort.
- What about diurnally flooded areas? How will potential upland contamination due to flooding be assessed? Note that on the Hudson River, floodplain sampling was handled separately from in-river activities. A shoreline needs to be defined, a floodplain (100-year, etc.) selected, and different action levels are likely to be operating in upland areas. These are not in the current field sampling plan scope. It was questioned whether areas with hardened shorelines should be included in floodplain assessments. It was noted that they could still be flooded, and that transport of contaminated sediment to upland areas had to be considered, especially in parks and greenway areas along the river. During the 6-mile stretch program, TSI did not undertake any floodplain characterization, but there should be data from many NJDEP ISRA sites under investigation in the project area that could be examined.
- What about groundwater inputs to the River? There are sites on the Passaic with significant petroleum contamination in the groundwater table, some under active remediation. All available information should be obtained from NJDEP.
- What about air deposition of PCBs, dioxins, and mercury? There are four air deposition monitoring stations in the project area that have developed air deposition source terms for these contaminants. The data from these stations has been validated by CARP, including the source terms, and HydroQual is examining the data.
- For water column sampling, at least three depth intervals should be sampled at each station/automated sampler to obtain vertically-integrated samples. Below the Harrison Reach, at least three depth intervals should be sampled in both the freshwater and saltwater strata. Sampling all the fixed stations at slack tide would not be useful to the modelers because the suspended sediment loadings will be lowest at slack tide. The modelers need samples that represent maximum flow and maximum resuspension.
- For water column sampling, are whole water samples proposed? Separate extraction of solids and recombination of extracts (as PVSC did for POTW, CSO & SWO samples collected under CARP) or solid phase extraction? What are the contaminants of potential concern, the required detection limits and holding times? PVSC started a water column sampling program with 3 stations located on each transect but later abandoned the shoal stations because they did not differ from the mid-channel data for conventional pollutants.

- Characterization of storm water loads to the Passaic is an important component that must be added to the sampling program.

- Can the data type/data users table be divided by bioaccumulative vs. acutely toxic contaminants? Can this help inform the design of the sampling program? How do data needs change from place to place in the River?

- Need to get hand-outs in advance of the workgroup meetings. Need a full description of the contents of field sampling plans 1, 2 and 3 to understand how the work will be divided among the various documents.

- There needs to be a basis for compositing water column samples, so that no information is lost due to compositing.

- Be prepared for theft and vandalism of automated samplers. No piece of equipment can be left on a buoy for a week. All PVSC sampling is done from boats and bridges in the upstream section. Need a second workgroup meeting when the data type/data users and limits tables are available for review. Input from the workgroup should continue during the sampling and provide for modifications.

- Perhaps the process for these projects should keep the Hackensack River associated with Newark Bay and not include it as a tributary sampling location in field sampling plan 1. HydroQual has questioned the value of tributary sampling in the Hackensack, since the freshwater flow over the Oradell Dam is very small. It was noted that most of the freshwater flow in the Hackensack was wastewater, so a wastewater characterization could be a substitute for sampling.

Future schedule for workgroup meetings was discussed, with two alternatives: 1) set aside the second Thursday of every month; or 2) schedule meetings when the schedule dictates that workgroup input will be valuable. A schedule will be sent out with key milestones related to sampling plan development and delivery. There needs to be an agenda for future meetings. Possibility of holding conference calls between face-to-face meetings. An offer was made for short presentations at future meetings on CARP Sampling, Lisa Totten's work, etc. A request was made for a set of large river maps to be maintained at the meeting location.

Draft Schedule of Sampling Deliverables
To Schedule Future Sampling Workgroup Meetings

Draft Field Sampling Plan I out for review	April 4, 2005
Draft Quality Assurance Project Plan out for review	April 4, 2005
Conduct geophysical survey to inform sediment core locations	during April 2005
Comments due on draft Field Sampling Plan I	May 6, 2005
Comments due on draft Quality Assurance Project Plan	May 13, 2005
Data from geophysical survey available for review	end-May 2005
Revise Field Sampling Plan I based on comments and geophysical survey data	mid-June 2005
Final Field Sampling Plan I released	end June 2005

Suggested dates for Sampling Workgroup Meetings:

April 19, 2005
June 9, 2005